CLAIMS

1. (Amended)

A transmission method comprising the steps of:

producing a plurality of finite-length signals of a length Nm

$S_{A,X}=(x_0A,\ 0\ldots0,\ x_1A,\ 0\ldots0,\ x_2A,\ 0\ldots0,\ \ldots,\ x_{m-1}A,\ 0\ldots0)$

$S_{B,Y}=(y_0B,\ 0\ldots0,\ y_1B,\ 0\ldots0,\ y_2B,\ 0\ldots0,\ \ldots,\ y_{m-1}B,\ 0\ldots0)$

…

using a plurality of data sequences

$A=(a_0a_1\ldots a_{N-1})$, $B=(b_0b_1\ldots b_{N-1})$, … and

a plurality of coefficient sequences

$X=(x_0x_1\ldots x_{m-1})$, $Y=(y_0y_1\ldots y_{m-1})$, …;

repeating each finite-length signal of said finite-length signals $S_{A,X}$, $S_{B,Y}$, … to produce a pseudo periodic signal …, $S_{A,X}$, $S_{A,X}$, $S_{A,X}$ …, …, $S_{B,Y}$, $S_{B,Y}$, $S_{B,Y}$, …, …; and

cutting out a part from said pseudo periodic signal to produce a signal of a predetermined length longer than Nm for making said signal a transmission signal.

2. (Amended)

The transmission method according to claim 1, further comprising the step of adding up a plurality of signals of a predetermined length, cut out from the pseudo periodic signal produced from different finite-length signals, to produce a transmission signal.

3. (Amended)

The transmission method according to claim 1 or 2 wherein

a plurality of transmission signals are produced using different coefficient sequences and

in an arbitrary combination of said plurality of transmission signals, a periodic cross-coefficient function

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of the transmission data of said transmission signals is 0 for all shifts.

4. (Amended)

The transmission method according to claim 1 or 2 wherein

a plurality of transmission signals are produced using different coefficient sequences and

in an arbitrary combination of said plurality of transmission signals, the plurality of transmission signals are transmitted in parallel so that periodic spectrums of the transmission signals have no correlation.

5. (Amended)

The transmission method according to one of claims 1-4 wherein said coefficient sequence is a row vector of a DFT matrix.

6. A communication method comprising the steps of:

transmitting the transmission signal according to one of claims 1-4; and

receiving said transmission signal and outputting a data sequence via a matched filter corresponding to said coefficient sequence.

7. The communication method according to claim 6 wherein

at least one transmission signal selected from said transmission signals is used as a pilot signal for measuring multi-path characteristics, and

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the received signal has multi-path characteristics of a transmission path.

8. (Amended)

The communication method according to claim 7 wherein

a plurality of transmission signals are produced using different coefficient sequences of a spreading sequence and

at least one transmission data sequence selected from said transmission signals is used as the pilot signal, further comprising the steps of:

finding multi-path characteristics from the reception signal of the pilot signal; and

removing the multi-path characteristics from the reception signal of the other transmission signals using the multi-path characteristics, which are found, to produce a data sequence.

9. (Amended)

A data structure of a transmission signal comprising a signal of a predetermined length produced in accordance with a method comprising the steps of:

producing a plurality of finite-length signals of a length Nm

$S_{A,X}=(x_0A, 0\ldots0, x_1A, 0\ldots0, x_2A, 0\ldots0, \ldots, x_{m-1}A, 0\ldots0)$

$S_{B,Y}=(y_0B, 0\ldots0, y_1B, 0\ldots0, y_2B, 0\ldots0, \ldots, y_{m-1}B, 0\ldots0)$

…

using a plurality of data sequences

$A=(a_0a_1\ldots a_{N-1})$, $B=(b_0b_1\ldots b_{N-1})$, … and

a plurality of coefficient sequences

$X=(x_0x_1\ldots x_{m-1})$, $Y=(y_0y_1\ldots y_{m-1})$, …;

repeating each finite-length signal of said finite-length signals $S_{A,X}$, $S_{B,Y}$, … to produce a pseudo periodic

signal …, $S_{A,X}$, $S_{A,X}$, $S_{A,X}$ …, …, $S_{B,Y}$, $S_{B,Y}$, $S_{B,Y}$, …, …; and

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cutting out a part from said pseudo periodic signal.